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Specification paragraphs which are changed

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In accord with the invention, drawing waste water causes it to be replaced by diffusion of air from the atmosphere. The related invention is then preferably applied to the soil, wherein air is forced into the soil by pressurizing the interior of conduit. Use of the present invention lowers resistance to such air flow and air flows through the influence zone and field more easily and quickly than otherwise.

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The present invention may be used in combination with the invention of the related U.S. Pat. No. 6,485,647, Method and Apparatus for Treating Leach Fields. In the related invention, air or other reactive gas is flowed through the influence zone of a leach field conduit, to beneficially affect the biochemical activity in the influence zone. Various methods and apparatuses for causing air to flow through the influence zone are described. The prior invention is referred to here as Leaching Field Aeration, or LFA. The description and drawings of the LFA Patent No. 6,485,647 are hereby incorporated by reference.

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In another embodiment of the invention, the leach field is configured in a certain less common way, so that when the septic tank is partially emptied, a conduit which is connected to the septic tank and is filled with water at least partially drains back into the tank. Thus, with this kind of system, when the septic tank is partially or fully emptied, there is dewatering of the conduit, in the same way as achieved by directly pumping of a conduit.

When a waste water system is in continuing use, and it is desired to dewater the conduits and influence zone, the septic tank is partially or fully emptied, prior to or contemporaneously with removal of water from the conduits. That action provides an accumulation zone or reservoir for subsequent waste water flow into the septic tank. Thus, as the use of the waste water system

continues, there will be a longer time before which wastewater re-flows into the dewatered conduits and influence zone. This increases the time during which biochemical action can be effected by air in the influence zone, whether the air is present or simply due to natural processes or whether it is being forcibly flowed through the zone.

Fig. 5 shows how an air impermeable membrane 80 such as polyethylene sheet is laid over the surface 42 of the soil proximately above the conduit. Adjacent areas are uncovered. Thus, air which is being drawn downwardly to replace water removed by the dewatering technique will flow as indicated by the arrows. With the membrane, air will be channeled to flow through soil near the sides of the conduit, rather than flowing directly downward through soil directly above the conduit. The membrane may be a sheet of plastic or granular media which is relatively impermeable, such as wetted bentonite. Other films and substances will be understood to be substitutional. The membrane may alternatively be buried beneath the surface, although that will usually only be practical with an original installation.

To facilitate flow of water through the soil of a leach field to a collection point when practicing the dewatering techniques described herein, the soil may be made more permeable by using a process wherein pressurized air or other fluids are forced into the earth through specially designed probes. For example, the commercially available Terra-Lift™ equipment and process (Terra Lift, Inc. Stockbridge, Massachusetts, US) may be used, in accord with the description in U.S. Pat. No. 5,810,514. In the process, injection pipes are inserted into the depth of the soil, adjacent to the conduits. For instance, a pipe is inserted between parallel runs, at spaced apart locations, one after the other. The soil is lifted up and fractured by a sharp pulse of compressed air, and fissures or permeable paths are created within the soil. This aids flow of water away from the influence zone. Sometimes the process involves injection of beads or pellets into the fissures, but in practice of the present invention, that step will be mostly omitted.